

To: Auer, Steven[sauer@TechLawInc.com]
From: Wall, Dan
Sent: Sat 8/8/2015 6:41:59 PM
Subject: FW: MSI Animas River Sampling - 8/6

From: Scott Roberts [mailto:scott@mountainstudies.org]
Sent: Saturday, August 08, 2015 12:14 PM
To: Wall, Dan; Peter Butler; Way, Steven
Cc: Faulk, Libby; Myers, Craig; Stevenson, Peter; Marcie Demmy Bidwell; Aaron Kimple
Subject: Re: MSI Animas River Sampling - 8/6

Hi Dan and all,

Thank you for the email. The Mountain Studies Institute (MSI) and I are happy to partner with you to understand the potential ecological consequences of this event.

Regarding BMI: I am headed into the field for the rest of the day to continue to collect BMI samples. I'll get in touch this evening to discuss what I have already accomplished and a plan for how we want to proceed with sampling (which sites and at what frequency). Below, I have pasted the methodology that I have been using (and will continue to use), which replicates the method used in historical sampling on the Animas River.

Regarding MSI's water quality samples: Since I will be in the field, MSI's point of contact for these water samples is Marcie Bidwell (Personal Phone/Ex. 6 [505.223.7060](tel:5052237060)) and/or Aaron Kimple (Personal Phone/Ex. 6 [505.223.7060](tel:5052237060)) (marcie@mountainstudies.org) and/or Aaron Kimple (akimple@mountainstudies.org). Please be in contact with them to discuss the analysis of these samples.

We look forward to working with you on this important issue.

Thank you,

Scott Roberts

Mountain Studies Institute

Aquatic Ecologist

1309 E. 3rd Avenue #106, Durango CO 81301

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BMI Methodology:

In order to allow direct comparison to the historical Animas River BMI dataset, we replicated a BMI sampling method (to the greatest extent possible) that was developed by Chester Anderson and used previously on the Animas River (Anderson 2007; personal communication). Anderson's method utilizes and modifies protocols developed by the Environmental Protection Agency (Barbour et al. 1999) and Colorado Department of Public Health and Environment (CDPHE 2010).

Anderson (2007) assessed a variety of BMI sampling methods and determined that the most appropriate method for use in the Animas River was a targeted riffle method that utilizes a modified rectangular dip net coupled with a dolphin bucket. The size of the net opening is 46 cm by 25 cm or 0.115 m² (178 in²). We implemented this methodology using the same rectangular dip net used in Anderson's previous Animas River BMI sampling. Each sample was collected by placing the net securely on the bottom of the river with the net opening facing upstream. A biologist stood downstream of the net and disturbed the substrate on the river bottom that was immediately upstream of the net. Substrate was disturbed by lifting and scrubbing rocks and gravel by hand for approximately 90 seconds so that benthic macroinvertebrates would be dislodged and drift downstream into the net opening. For each sample, an area of approximately 0.115 m² of substrate was disturbed, which is identical to the size of the net opening. For each site, five samples were obtained diagonally across riffle habitat within an approximately 100 meter-long section of the river. The five samples were then composited into a single

sample container. Thus, 0.575 m² (890 in²) of riffle habitat was sampled at each site (0.115m² x 5 samples).

Works Cited:

Anderson, C. 2007. Effects of Mining on Benthic Macroinvertebrate Communities and Monitoring Strategy. *In* S. Church, P. von Guerard, and S. Finger (Eds.), Integrated Investigations of Environmental Effects of Historical Mining in the Animas River Watershed, San Juan County, Colorado. USGS Professional Paper 1651.

Anderson, C. 2013. Personal Communication, 10/8/2013.

Barbour, M., J. Gerritsen, B. Snyder, and J. Stribling. 1999. Rapid Bioassessment

Protocols for Use in Streams and Wadeable Rivers: Periphyton, Benthic

Macroinvertebrates and Fish, Second Edition. EPA 841-B-99-002. US Environmental Protection Agency; Office of Water; Washington, D.C.

Colorado Department of Public Health and Environment. 2010. Benthic

Macroinvertebrate Sampling Protocols. Water Quality Control Division –

Standard Operation Procedure. WQCDSOP-001.

From: Wall, Dan <wall.dan@epa.gov>

Sent: Saturday, August 8, 2015 11:11 AM

To: Peter Butler; Way, Steven

Cc: Faulk, Libby; Scott Roberts; Myers, Craig; Stevenson, Peter

Subject: RE: MSI Animas River Sampling - 8/6

Thanks Scott. Per our conversation I will be pursuing getting funding for you and a lab to assist you in identification if you will allow us to expedite the analysis. This data will be very valuable to the agency and of great interest to the public. As you know from our previous collaboration, we have some requirements for us to be able to use the data. Given the circumstances, and our recent work history we ONLY request that you use comparable methods, some comparable locations to what we and you/TU have collected in the past and any SOPs you may have.

As I am sure you are aware, the data from last years event(s) will be highly relevant for assessing the impacts of this accident. We will rely heavily on your expertise in interpretation and do not wish to curtail or influence your intended use or interpretation of the information.

If you intend to replicate locations in the canyon (which I believe may be worthwhile (Cascade&Elk), please let me know if we can help in getting you access from the railroad. They have offered assistance.

I will have a better understanding of our mechanism to fund the BMI work soon, but I am confident we will. We are still in the process of standing up our contracting.

Regarding the water samples, and again as we discussed, we will analyze those results at Green Analytical (or whoever is our current lab) and incorporate them into our data stream. Please call me when/where you would like to deliver the samples.

At your convenience, please forward any SOPs that describe your water and BMI sampling methods.

Lastly, we would like to extend an invitation to MSI to join the unified command to assist us with sampling and sample design. We can talk more about what that means (Im not sure myself) when you are out of the field.

Scott, we greatly appreciate your initiative to collect these important samples and willingness to work with us to help keep the community and agencies informed.

Please do not hesitate to call me if you have questions or concerns.

Dan

303-253-1659

From: Peter Butler [<mailto:butlerpeter2@gmail.com>]

Sent: Friday, August 07, 2015 8:11 PM

To: Wall, Dan; Way, Steven

Cc: Faulk, Libby; Scott Roberts

Subject: MSI Animas River Sampling - 8/6

Dan and Steve – Scott Roberts has undertaken some macroinvertebrate sampling that may be useful for monitoring the impacts of the plume. He is looking for some funding from EPA to finish the effort. Please see below.

Peter Butler

970-259-0986

Cell 970-317-0584

From: Scott Roberts [<mailto:scottwrs@gmail.com>]

Sent: Friday, August 07, 2015 3:35 PM

To: Peter Butler

Cc: wsimon@frontier.net; kirstin.brown@state.co.us; Aaron Kimple; Marcie Demmy Bidwell

Subject: Re: MSI Animas River Sampling - 8/6

Thanks Bill and Peter.

I plan to move forward with follow-up BMI sampling in Durango at Rotary Park and at 32nd Street. I'll collect samples today, in a few days when the sediment plume dissipates, and as scheduled in September.

In Silverton, I have EPA-funded samples from last fall from the Animas below the confluence with Mineral Creek, and also on the Animas above the confluence at Cement Creek. I would like to re-sample both of these locations now and again in September. I will use the Animas River above Cement Creek as a control, not affected by the sediment plume.

The objective will be able to assess the impact of the mine drainage release on benthic macroinvertebrate communities and how quickly the BMI communities recover and re-colonize.

Please let me know your thoughts on this plan and if you think we can coordinate this effort with EPA for funding.

Thank you!

Scott Roberts

865-382-2993

On Aug 7, 2015, at 10:07 AM, Personal Phone/Ex. 6 wrote:

Hi all,

I wanted to let you all know about MSI's efforts to document the water quality impacts of the Gold King mine drainage in the Animas River in Durango. The sediment plume arrived in Durango at Rotary Park at approximately 10:30 PM on Thursday, August 6.

We collected river water samples at 8 PM, 9 PM, 10 PM, 10:30 PM, 11 PM, 11:30 PM, 12:00 AM, and 12:30 AM.

We collected macroinvertebrate drift sampling at 9 PM, 10:30 PM and 11:30 PM to capture macroinvertebrates that would be drifting downstream in the water column to escape the sediment plume.

We collected quantitative benthic macroinvertebrate samples from Rotary Park and 32nd Street prior to the arrival of the sediment plume. We will re-sample these two sites in the coming days to document any changes to benthic macroinvertebrate community composition that may occur as a result of the event.

Regarding the water quality samples, we were planning to have the full suite of metals analyzed. Is there any particular analyte that you would like to see analyzed or just the full suite?

We will be seeking funding to process the water quality and benthic macroinvertebrate samples so please let us know if you know of any funding sources for this work.

<image1.JPG>

Thank you,

Scott Roberts

Mountain Studies Institute

Aquatic Ecologist

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